APRIL/MAY 2025

# CSCS33 — DIGITAL LOGIC DESIGN AND COMPUTER ORGANIZATION (SBSI)

Shanmuga Industries Arts & Science College
T.V.Malai

Time : Three hours Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL the questions.

1. Convert the binary number 1011 to decimal.

2. Convert the hexadecimal value A4B to octal.

3. Solve the expression using binary subtraction 1101 – 1010.

4. Give an example for product of sum expression.

5. Define Synchronous counter.

6. What will be the output after right shift the value 10110101 two times?

7. How to represent the expression $a+b$ in stack?

8. Give the format of register reference instruction.

9. What is meant by content addressable memory?

10. Define I/O interface.

SECTION B — (5 × 5 = 25 marks)

Answer ALL the questions.

11. (a) Give an account on binary multiplication and division with example.

Or

(b) Write short note on digital computer and digital system.

12. (a) Narrate the function of full adder and subtractor with circuit and truth table.

Or

(b) Convert the following Expressions into the sum of Products and Product of sums.

(i) $(AB+C)(B+C'D)$

(ii) $X'+X(X+Y')(Y+Z')$

13. (a) Give an account on asynchronous counter.

Or

(b) Narrate the functions of RS, D and T flip flop with diagram and truth table.



14. (a) Write short note on addressing modes of the system.

Or

(b) Exemplify the data transfer operation in the system.

15. (a) Give an account on direct memory access.

Or

(b) Narrate the Importance of cache memory.

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SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Explain various Boolean law and theorem.

17. Simplify the Boolean expression $Y = A'B'C'D' + A'B'CD' + A'BCD' + A'BCD + AB'C'D' + ABCD' + ABCD$ using k-map.

18. Elucidate the shift register working principles with circuit and truth table.

19. Describe the stack organization of the system.

20. Discuss on the significance of associative memory.